

Date: Friday, 12/12/2008 8:00:34 AM
 User: Jean-Luc Menard

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : BLADE
 Job Number : 44031
 Estimate Number : 10327
 P.O. Number :
 This Issue : 12/12/2008 S.O. No. :
 Prsht Rev. : NC Part Number : D2741
 First Issue : 1/1 Type : MACHINED PARTS Drawing Number : D2741 REV C
 Previous Run : 43255 Project Number : N/A
 Material :
 Due Date : 19/12/2008 Qty: 30 Um: Each
 Written By : *[Signature]*
 Checked & Approved By :
 Comment : Est Rev: D 00.11.15 Removed P/O turning - in house
 processEC
 Est Rev: E 06-03-20 As Per Rev C
 JLM
 Est Rev: F 06.04.20 Added grinding after heat treating E
 C

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 M4130NB0500X03000 4130 Bar 0.500 x 3.00



Comment: Qty.: 1.2118 f(s)/Unit Total: 36.3542 f(s)
 4130 BAR 0.5 x 3.0"
 Material: 4130 steel bar 0.50" x 3.00"

Batch: B 109614 → 23.0242 f(s)
 B 106274 → 13.3298 f(s)

ITP 08/12/17

30

2.0 BAND SAW BAND SAW



Comment: BAND SAW
 Cut blanks 13.850" long +0.063" -0.000"

ITP 08/12/17

30

3.0 HAAS1 HAAS CNC VERTICAL MACHINING #1



Comment: HAAS CNC VERTICAL MACHINING #1
 1-Machine per folio FA108

ITP 08/12/17

30

RO

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D2741 PAR #: NIA Fault Category: Prod / Eng (Cardinal) NCR: (Yes) No DQA: D Date: 09/02/06
 QA: N/C Closed: D Date: 09/02/14

NCR: <u>44031</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/12/17	3.0	Moved "Y" origine on rong side. Folio is Not clear enough!	<u>Lesum12</u>	- Update Folio.	<u>DIP</u> 08/12/17 <u>08-12-22</u>	<u>05-12-23</u>	<u>05/14/2</u>	<u>08-12-22</u>

NOTE: Date & initial all entries

Date: Friday, 12/12/2008 8:00:34 AM
User: Jean-Luc Menard

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BLADE

Job Number: 44031

Part Number: D2741

Job Number:



Seq. #:

Machine Or Operation:

Description :

4.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

DIP 08/12/23

30

5.0

QC8

SECOND CHECK



Comment: SECOND CHECK

08.12.23

30

6.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

1-Debur

2-Bend per Dwg D2741

SB 08/12/23

30

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08.12.23 30

8.0

OUTSIDE SERV.30

OUTSIDE SERVICES-MACH



Comment: Sub-Contracting PURCHASING

Issue P/O: 7903

Harden material as per Dwg D2741

Min. Ultimate Tensile Strength = 152 ksi (34-40 HRC)

Min. Yield Tensile Strength = 141 ksi

Test report or Certification required

CL 09/01/06

30

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive and Inspect for transit damage

Ensure Test report or Certification attached

SS 09/01/20 30

10.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

09/01/20 30 (cont'd)

11.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

1-Pass in deburring machine

2-Grind off edges

1/18

W/O:		, WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BLADE

Job Number: 44031

Part Number: D2741

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.2) as per QSI 005 4.3

START TIME:

11:20

OVEN TEMPERATURE:

400°

FINISH TIME:

11:50

(+ pressure wash 1 wipe) M 109996

MD / FA.

09-02-03 (30)

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BF 09-02-03 (30)

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location:

ST466

SS

09/02/04

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

HJ 09/02/05

Job Completion



MF 09-02-04

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

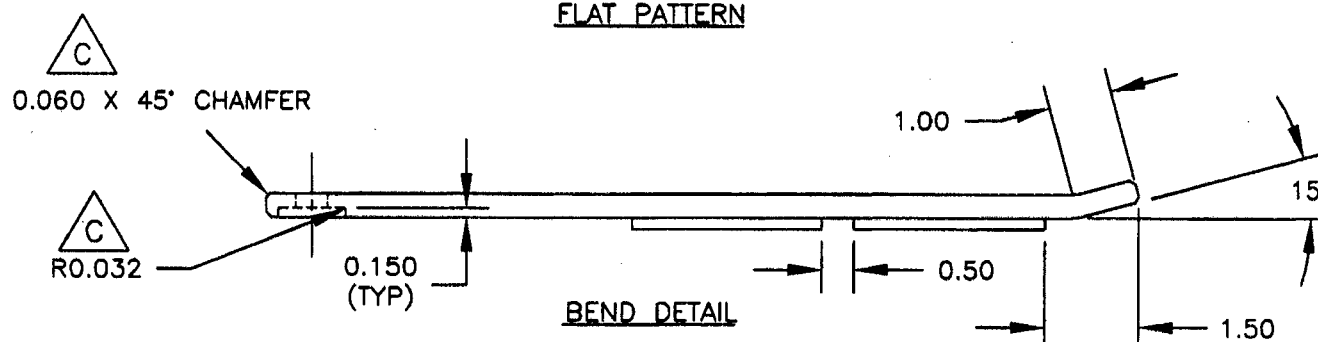
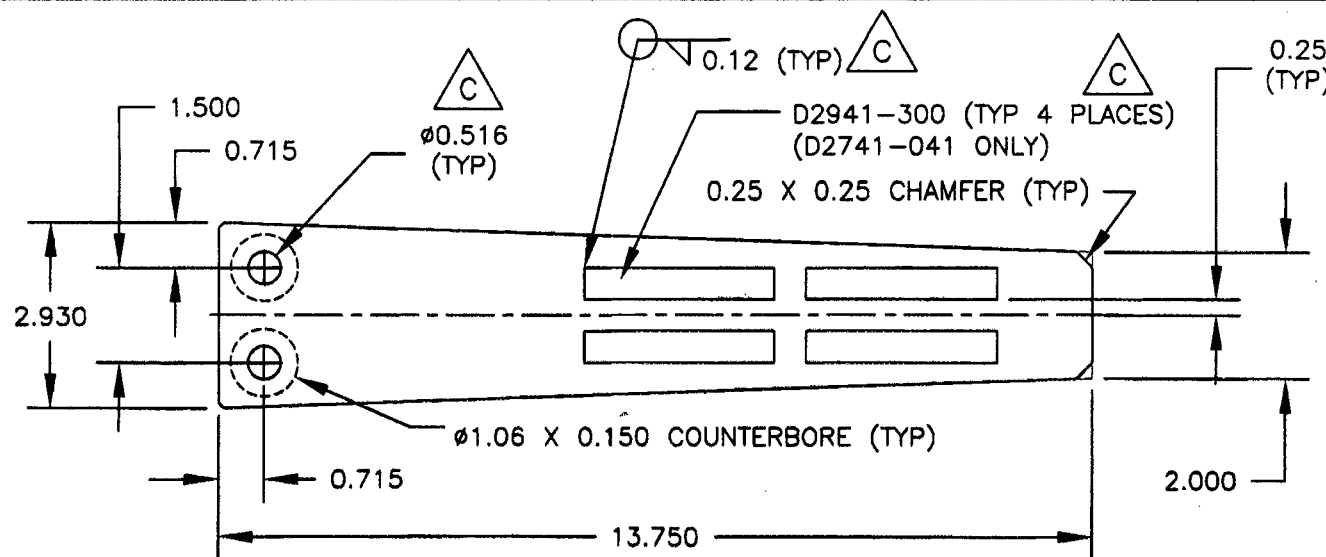
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

RELEASED
06 02 07

DESIGN	DRAWN BY	DART AEROSPACE USA, INC.		
06.01.12	06.01.12	06.01.12	06.01.12	06.01.12
CHECKED	APPROVED	DRAWING NO.	REV. C	SHEET 1 OF 1
06.01.12	06.01.12	D2741	06.01.12	06.01.12
DATE	TITLE	SCALE	1:3	
06.01.12	BLADE			
A	98.04.16	NEW ISSUE		
B	98.09.01	CHANGE C'SINK TO C'BORE		
C	06.01.12	LARGER HOLE ADD RADIUS AND CHAMFER ADD -041/-043 OPTIONS		



D2741 BLADE

- 1) MATERIAL: AISI 4130 STEEL 0.375 THICK
MIN. ULTIMATE TENSILE STRENGTH = 152 ksi (34-40 HRC)
MIN. YIELD TENSILE STRENGTH = 141 ksi
- 2) FINISH: POWDER COAT WHITE (REF. 4.3.5.2) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES 0.030 TO 0.060
- 6) TO MAKE D2741-041, WELD D2941-300 (4) AS SHOWN ABOVE.
REMOVE POWDER COAT FROM SURFACE OF D2941-300
- 7) TO MAKE D2741-043, WELD 7560 HARDCOAT ROD INSTEAD OF D2941-300

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Rapport d'inspection

Order	Load
144595	1

Customer 215

DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K6A 1K7

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
7903		4130		

PROCESSING SPECIFICATIONS

OIL HARDEN

HARDEN AND TEMPER

SAE AMS 2759/1 REV.D

Requirement	Specified	Tests Performed	Test Results
HARDNESS	34 - 40 HRC	30	36 - 39,7 HRC
TENSILE (KSI)	160 - 180 KSI		171 - 180 KSI

Quantity	Weight	Part Number / Part Description
30	106	D2741 B44031 1 PAL=2 B.C

COMMENTS

INSPECTOR:

DATE: 2009-01-16



METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
144595	1

Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

Shipped To:

DART AEROSPACE
1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

Customer PO / PO du Client	Customer Shipper No.	Material Type / Material	Mat'l Heat Code	Lot Number
7903		4130		

PROCESSING SPECIFICATIONS

SEL HARDEN

HARDEN AND TEMPER

SAE AMS 2759/1 REV.D

Requirement	Specified	Tests Performed	Test Results
HARDNESS	34 - 40 HRC	30	38 - 39.7 HRC
TENSILE (KSI)	160 - 180 KSI		171 - 180 KSI

OK CP 09.01.20

Quantity	Weight	Part Number / Part Description
30	106	D2741 B44031 BLADE 1 PAL=2 B.C

S

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 PREPARINC	COMPTAGE									
3.00 PREHEAT 1	1000	1:00 1:30	air			134	01-15-09	9:25	10:55	01-15-09
4.00 SEL HARDE	1575	0:40	SEL		BRINE	107	01-15-09	10:55	11:45	01-15-09
5.00 WASH	150	0:30	soap			150	01-15-09	12:05	12:50	01-15-09
6.00 SNAP TEMF	400	2:00	air							
7.00 DIST INSP										
8.00 TEMPER	875 +/-10°F	2 hrs	air			639	01-15-09	12:50	15:20	01-15-09

METCOR INC.
 560 BOUL. ARTHUR-SAUVÉ
 ST-EUSTACHE, QC, J7R 5A8
 Tel: 450-473-1884 / Fax: 450-491-5498

Certification

Order	Load
144595	1

Customer 215
 DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY ON K6A 1K7

Shipped To: 1
 DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY ON K6A 1K7

Operation	Specified Temp	Specified Soak Time	Atmosphere	Carbon Potential	Q-Media Q-Temp	Furnace# Load #	Start Date	Time In	Time Out	Date Complete
9.00 HARDN INS										
10.00 SANDBLAS			Sablage							
11.00 HUILAGE			huile							
12.00 FINAL INSP										01-16-09

COMMENTS

APPROVED BY:   DATE: 2009-01-16

We certify that all the information on this report is exact and in accordance with the order requirements. / Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client.